REMARKS

Claims 36-39 have been amended. Claim 35 has been canceled. Claims 40-49 have been added. Claims 36-49 are now pending. A Petition for Extension of Time (three months) is being filed concurrently herewith. Applicants reserve the right to pursue the original claims and other claims in this and other applications. Applicants respectfully request reconsideration of the above-referenced application in light of the amendments and following remarks.

Claims 36-39 stand objected to under 37 C.F.R. § 1.75(c) as being of improper dependent form for failing to further limit the subject matter of a previous claim. Claims 36-39 have been amended. Specifically, claims 36-39 now depend from claim 40. Therefore, the objection should be withdrawn.

Claim 35 stands rejected under 35 U.S.C. § 102(e) as being anticipated by Weber. Claim 35 has been canceled and the rejection should be withdrawn.

Claims 36-38 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Weber in view of Zurek. Claims 36-38 depend from newly added claim 40 and the rejection should be withdrawn.

Claim 39 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Weber in view of Watanabe. Claim 39 depends from newly added claim 40 and the rejection should be withdrawn.

New independent claim 40 relates to an air flow measuring device. The air-flow measuring device of claim 40 can be formed in a compact and monolithic form, and accordingly, it does not cause a high resistance to the main air-flow. The claimed

flow measuring device can be easily installed in an existing flow passage for measuring the flow rate of air-flow passing in the flow passage.

Further, the claimed device has "a flow measuring element located downstream of [a] curved portion . . . with the location of said flow measuring element relative to said curved portion being such that particles in said air flow do not interfere with said flow measuring element." The location of the flow measuring element relative to the curved portion is an important aspect of the claimed invention. As shown in FIG. 1, by way of example, air-flow enters sub-passage inlet 9 and travels in directions 8b to 8c toward sub-passage outlet 10. The inertia of the particles or other foreign matter that enter sub-passage 7 causes the particles to travel along the outer wall surface 71 (FIG. 3) and, as a result, do not interfere with the flow measuring element 3.

Weber discloses a flow measuring device which has a triple-hold flow measuring passage 20. The S-shaped configuration inevitably makes the device bulky and highly resistive in a main flow passing through a main passage. Thus, it is difficult to mount Weber's flow measuring device in an existing flow passage.

Weber does not rely on position of the flow measuring element in an air-flow device, because it has another means for removal of foreign matter and particles from the air-flow device. That is, Weber discloses the use of absorption coatings. Weber discloses conduit 20 is coated with a particle absorbing coating 50. The particles are absorbed into the coating 50. Thus, Weber does not meet the flow measuring element location of claim 40, nor does Weber have any reason for employing such a location.

The prior art of record also does not teach or suggest the subject matter of claim 41. Claim 41 recites an air flow device comprising "a module housing defining a sub-passage through which a part of an air flow to be measured is introduced, said sub-passage having an inlet and an outlet . . . a curved part . . . and a flow measuring element located downstream of the curved part in the sub-passage . . . wherein said curved part has a surface part to which inertia is applied by part of the air flow to be measured and which is smoothly extended to the outlet thereof."

With this claimed configuration, inertia is applied to foreign matter in sub-passage 7 and air-flow is smoothly extended to outlet 10 of sub-passage 7. In other words, Weber discloses the presence of a second curved portion which would not allow air-flow to be smoothly extended to the outlet of the sub-passage. Applicant's specification discloses that "air flow exits outlet 10 in a direction which is perpendicular to the entering air flow." (pg. 6, lines 7-8). Thus, air flow is smoothly extended to outlet 10 of sub-passage 7. This is a structural difference between the claimed invention and Weber's device.

Moreover, Applicants' specification discloses that the "distance between the sub-passage inlet 9 and outlet 10 is an important factor that determines the effect of inertia given throughout the sub-passage 7." (pg. 8, lines 1-3). Weber's S-shaped conduit 20 provides a different inertial effect on foreign matter since the conduit is longer. This is another structural difference between the claimed invention and Weber's device.

For at least the reasons provided above, claims 40 and 41 are believed to be in condition for allowance. Claims 36-39 and 47 depend from claim 40. Claims 42-46 and 48 depend from claim 41. Claims 36-39 and 42-47 are similarly allowable for at least the reasons provided above with regards to claims 40 and 41.

Moreover, the prior art of record does not teach or suggest that the "sub-passage has an outer wall, wherein said outer wall comprises at least one groove such that foreign matter in the air flow does not interfere with said flow measuring element," as recited in dependent claims 46 and 39. In fact, the prior art teaches away from Applicants' claimed outer wall with at least one groove. As indicated previously, Weber discloses absorption coatings 50 that absorb foreign particles. The claimed at least one groove allows the outer wall surface to "effectively gather and guide foreign matter to outlet 10." (Applicants' specification, pg. 8, lines 15-16). The foreign matter introduced into Weber's conduit 20 would not be guided along into sub-passage outlet 10 since it is absorbed.

The prior art of record also does not teach or suggest an air flow device further comprising an "air vent" as recited in dependent claims 36-38, 43-45, and 48. The air vent 11 (FIG. 5), allows foreign particles to escape from sub-passage 7. As discussed previously, the prior art discloses a coating to absorb foreign matter.

Further still, the prior art of record does not teach or suggest an "air vent having an opening surface area of less than about 50 percent of an opening surface area of said sub-passage outlet," as recited in dependent claims 36 and 43. Similarly, the prior art of record does not teach or suggest an air vent having "a ratio between an opening surface . . . and a sectional surface . . . less than about 1:10," as recited in dependent claims 38 and 45.

Applicants also respectfully submit that the prior art of record does not teach or suggest the elements recited in new claim 49. The claimed configuration, in which the curved part of the sub-passage is curved from the distal end side to the proximal end side of the inserted part of the module housing, allows the module housing to be thin. This in turn, allows a thinner insertion slot through which the module housing is inserted into the main passage. In general, the air flow measuring device introduces fluid flowing at a high rate of speed (around the center of the main passage). With the configuration of claim 49, in which the inlet is located nearer to the distal end side of the inserted part, the degree of insertion of the module housing can be decreased. In turn, the flow resistance in the main passage is reduced.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

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Respectfully submitted,

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